NOVEMBER 1947

FIREMEN

FIFTY-FIRST YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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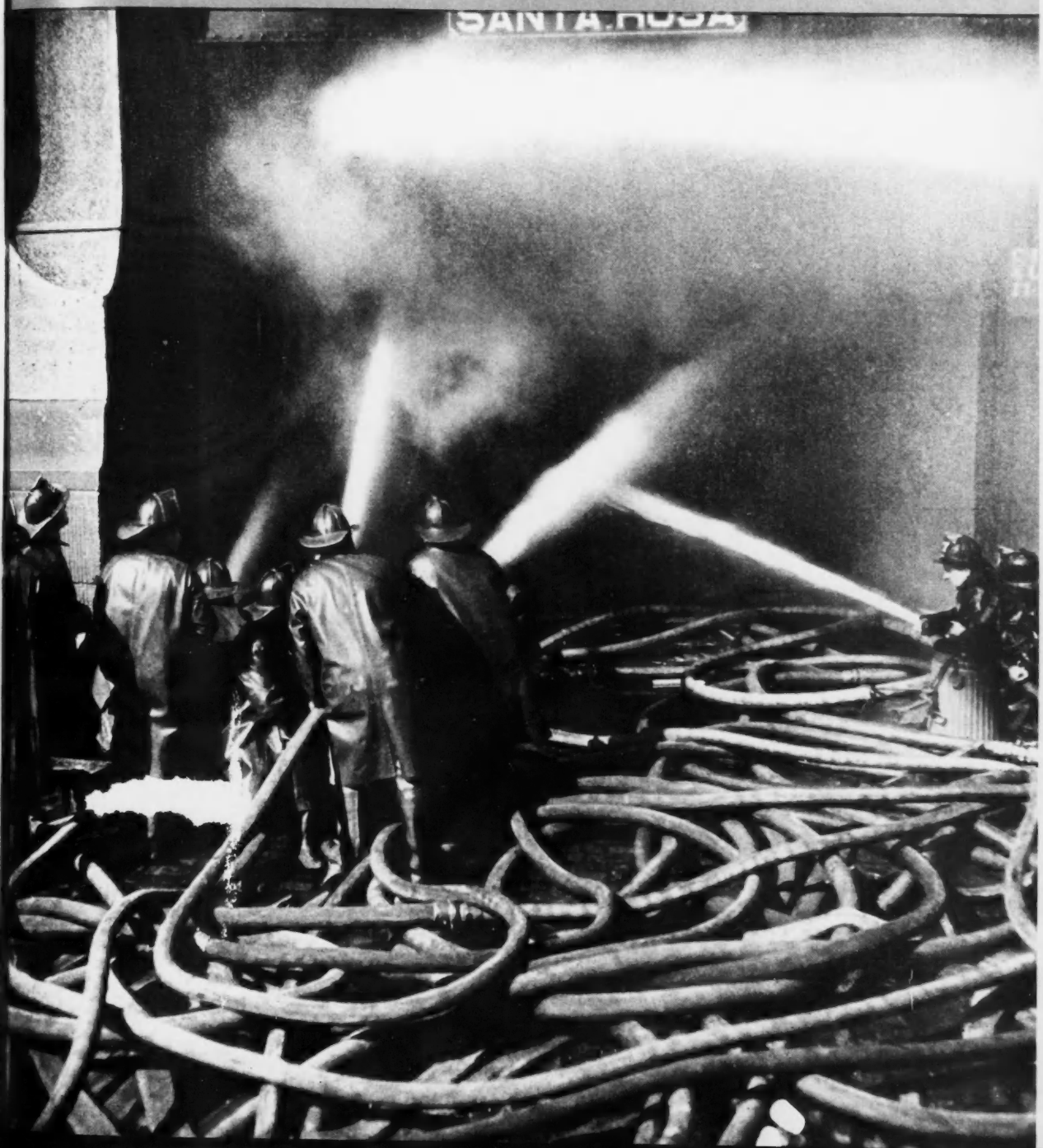

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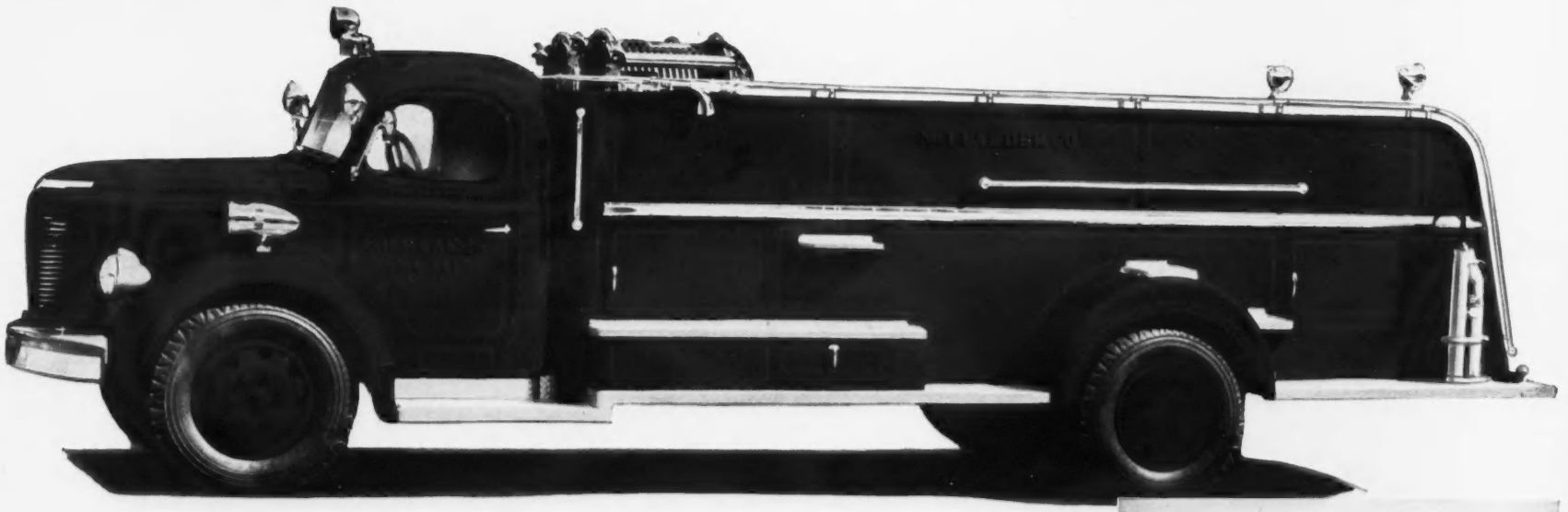

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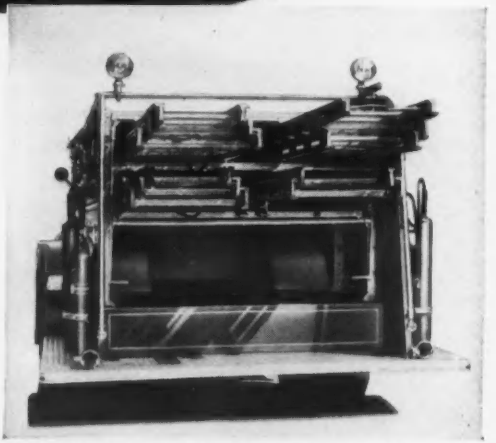

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Firemen

Volume 14 Number 11

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Published monthly for the fire service members of the

NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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THE cover picture this month (*Acme*) shows the maze of hose at the entrance to Pier 57, New York City, destroyed by fire on September 28. A watchman discovered smoke from a small fire below the deck at the outer end of the pier. Firemen were unable to break through the concrete on wood pier deck sufficiently to control the spread of the fire and ultimately much of the structure collapsed.

The cover picture indicates how futile are manual fire fighting efforts where construction and private protection have not been provided or designed to arrest spread of flames. N.F.P.A. standards call for openings for cellar nozzles at intervals not exceeding 25 ft. and transverse fire walls under the pier deck at intervals not exceeding 300 ft. to provide sub-structure fire areas of not over 50,000 sq. ft.

New York firemen responded to five alarms, a borough call for Brooklyn companies, and numerous special calls, but driven outside, could do little more than make the futile gesture of throwing water into the smoke until the pier collapsed. The fire finally was stopped at fire walls protected by open sprinklers under the bulkhead building at the land end of the pier.

Acme

View of $3,500,000 blaze at Pier 57, New York City

THE Los Angeles Fire Department recently issued an order requiring all company commanders and battalion chiefs to submit a list of what they consider to be the five more serious fire hazards in their districts. This is to lay the groundwork for fire prevention work on the company and battalion levels according to "The Firemen's Grape Vine," official publication of the Los Angeles Firemen's Relief Association, Inc.

In the near future, as a follow up, a reinspection of these hazards will be made by each captain accompanied by his battalion chief and a fire prevention inspector. The fire prevention inspector will be there to advise on the codes and laws relating to the hazard and what can be done to correct the situation. It is believed that the mutual exchange of ideas will be an education to all concerned.

Perhaps the Los Angeles Fire Department has hit upon a dramatic technique for eliminating the old "target hazards" that ultimately result in a "four or five bagger" (multiple alarm). Drop in at any fire station, and sooner or later the conversation will get around to certain very tough fire hazards in the district served, and it will be stated: "Wait until that old rookery lights off," or "that building will require a straight third."

Fire fighters know the location of the tough hazards in their districts. They have looked at them for such a long time that a certain fatalism exists. "What must be must be."

If, each year, each fire company could do something constructive about the five worst hazards in their district, the very serious life and conflagration hazards would be weeded out gradually. At least they would be made reasonably safe through installation of automatic sprinklers, automatic detection devices, fire doors, protection of openings, or other private protection as needed.

There will be fires despite our best fire prevention efforts, but the fire company can protect itself by putting the finger on the worst hazards, saying, "These are the places in our district where we would not want to see a fire."

The Los Angeles plan of directing attention to the worst hazards first, makes sense. Who is in better position to name the most dangerous fire situation than the man who is going to have to carry the pipe into that dark, smoky basement, or over the ladder into the overcrowded loft?

Fire Fighting History in Vienna

By Commandant Eric Ligier de La Prade

This article has been digested from "Fire," official journal of the British Fire Service. Commandant de La Prade is an officer of the French Regiment de Sapeurs-Pompiers with a distinguished war record and has been an officer of the French Control Mission of the Austrian Fire Services.

IN the year 5 A.D., there was, on the site of modern Vienna, the Roman stronghold of Vindobonia, its soldier-firemen under the independent command of a centurion. Following the collapse of the Roman Empire, the citadel of Vindobonia was abandoned and it was not until 881 that Wenia, or Vienna, came into the news again. Up to the Middle Ages, however, the city was without any official form of fire protection. The municipal records contain references to the inadequacy of the fire appliances and water supply in explaining why Wein was so frequently the scene of disastrous fires.

First Professional Cadre

One of these, in 1258, destroyed two-thirds of the town and part of the cathedral of St. Stephen, completed ten years earlier. Wood construction, narrow and tortuous thoroughfares, poor water supply, and primitive fire apparatus all contributed to conflagrations in those days and thus impressed on the inhabitants of medieval cities the necessity of organized fire defense.

On July 7, 1685, the Town Council of Vienna appointed one of its senior officials as fire chief and decided that his command should consist of four firemen, at two florins (about .97) a week of 168 work hours. This quartet was to supervise the work at fires of thirteen day workers trained specially to operate appliances and gear lodged at headquarters in the town hall. This ordinance is probably the first creating a professional fire force, and Vienna proudly claims that it had such a force before any other city in the world.

In 1759, the brigade was increased in personnel and materiel, among the latter of which were two large manually operated pumps and what today are called water tenders.

Breathing Apparatus, 1817

Fifty-eight years later, the establishment was increased by four under-officers and twenty day workers, while the appliances were increased to five large pumps, twelve water tenders, and an appliance to prevent asphyxiation in smoky atmosphere. This must have been the precursor of breathing apparatus for fire fighters.

At night the tower of St. Stephen was occupied by a fireman whose duty it was to watch for signs of outbreaks of fire. He had to be a person of some education, because, on detecting an outbreak, he had to write on a slip of paper the approximate scene of the fire. That done, he put the paper slip into a hollow, shiny, wooden ball which was dropped down a length of leather hose, the lower end of which was in the room occupied by the sleeping sexton. Aroused by the sound of the falling ball, the sexton ran with the news to headquarters, where the attacking force was hurriedly summoned and dispatched.

Hydrant Number 1

In 1841, Vienna had its first large water main, and nine years later its first hydrant. The next year saw the firemen equipped with protective headgear. In 1853, the town council decided to increase the number of hydrants from one to nine, of a new type. This was the first step toward augmenting the number to approximately 8,500 today.

Following a severe fire in the Schottenhof, the fire brigade was reorganized in 1854. Personnel was increased to 120 men, and six district stations, each with twelve firemen with wheeled appliances, including ladders, were opened in the suburbs beyond the city wall.

Another increase of establishment came in 1867 when the total was raised from 120 to 287 and the number of horses to 142.

In 1873, the escape chute was used for the first time at a fire, and five years later Vienna commissioned its first steamer. In this year, a mechanical ladder was the means of saving eight men trapped in a severe building fire. This was a year of progress for Vienna because it also saw the beginning of the installation of fire alarms in public thoroughfares and all public and private buildings presenting fire hazards of importance.

Ring Theatre Holocaust

On December 8, 1881, came the tragic fire at the Ring Theatre in which hundreds of lives were lost. This aroused the public authorities and in

Continued on page 16

Vienna Fire Department Rescue Squad

The Vienna Fire Brigade is pictured in an illustration on the NFPA Membership Certificate as the oldest continuous paid fire brigade in the world.

Additional information on the Vienna Fire Department may be found in two articles by Boris Laiming, which appeared in the October 1936 QUARTERLY on page 107, and in the July 1937 QUARTERLY on page 38.

Soot and Chimney Fires

By Robert S. Moulton, NFPA Technical Secretary

SOOT deposited in chimneys is a mixture of products of incomplete combustion of various fuels. The principal element of soot is carbon in finely powdered form. Other elements in soot consist of creosote and various tarry products which may be produced from the combusion of wood and coal, and in the case of oil fuel, certain oily residues.

The amount of soot produced depends upon the particular type of fuel used, the conditions under which it is burned, and the extent to which it is cooled in the chimney. A proper air supply to produce combustion of the fuel with a minimum of smoke will result in the production of a minimum amount of soot, other factors being equal.

The deposits of soot in a chimney or pipe depend to a considerable extent upon the temperature. A relatively small amount of soot will be deposited where the temperatures of the flue gases are high. Where the gases are cooled, soot will be more readily deposited and creosote and tarry substances, if present, will be condensed from the smoke. The deposits of soot are thus influenced by the design of flues and chimneys and more particularly by the method of operation. So-called barometric dampers which regulate the draft by means of admitting cold air to the smoke pipe provide the means for rapid cooling of the smoke and tend to increase soot deposits. Intermittent operation of a heating device is likely to produce greater soot deposits than continuous operation where the chimney walls are kept warm by the continuous operation of the heater.

Green wood is particularly subject to the formation of soot as the moisture present is apt to result in incomplete combustion and the formation of excessive amounts of smoke which in turn produces soot in the chimney. Woods of a resinous nature such as pine are likely to produce soot deposits which are unusually adhesive and may form a hard cake that is more difficult to remove than any soot produced by the burning of hard woods.

Anthracite coal or coke, except under rather unusual conditions, should not produce deposits of soot in any appreciable quantities. Bituminous coal is prone to production of soot deposits, the amount depending quite largely upon the method of firing of the heating device. With careful firing which produces the maximum efficiency of combustion of coal, there will be a minimum of smoke and in turn a minimum of soot. There is also some difference in soot produced depending upon the particular type of bituminous coal used. With any type of bituminous coal, however, there is considerable production of soot, particularly under ordinary conditions of hand firing.

A fuel oil burner, if properly adjusted, produces very little soot. However, an improperly adjusted burner producing a smoky flame may produce a large quantity of soot, sometimes sufficient to completely block a smoke pipe or chimney in a relatively short period of time. Such smoky flames are highly wasteful of oil as well as conducive to the production of soot.

Accumulations of soot in chimneys are conducive to chimney fires as a source of ignition is present in the heating device itself and under favorable conditions the previously accumulated soot may be ignited. Such ignitions may occur by reason of sparks carried up into the chimney or as a result of continued operation of the heating device at a high rate at periods of cold weather. Flues from fireplaces are particularly subject to chimney fires as when papers or an excessive amount of fine kindling are burned in the fireplace flames may be carried up the chimney for a considerable distance to ignite previous accumulations of soot.

Chimney fires may sometimes burn themselves out without damage to the structure. A chimney which completely complies with all standards for construction and is properly separated from any woodwork in the vicinity can often burn out with no damage. However, if there is any defect in the chimney or if proper clearance is not maintained between the outside walls of the chimney and woodwork, ignition of the woodwork is probable in the case of a chimney fire. Chimney fires are also particularly dangerous in case there are wooden shingle roofs on the building or on adjoining buildings as any chimney fire discharges burning particles of soot, these particles providing sufficient heat to ignite wooden shingles. Spark arresters, which may be of value in stopping sparks from ordinary operation of heaters and fireplaces, will very likely be totally ineffective in the case of a chimney fire.

Continued on page 20

Illinois Governor Dwight H. Green was among the thousands of visitors to the fire prevention booth at the Illinois State Fair this year. Shown L. to R. are: A. C. Schilke, president of the Illinois State Fair Fire Prevention Exhibitors Association; A. H. Gent, engineer, Illinois Inspection Bureau; Herbert A. Elkin, association secretary; Governor Green; John H. Craig, state fire marshal; and Harry Rogers, Western Actuarial Bureau.

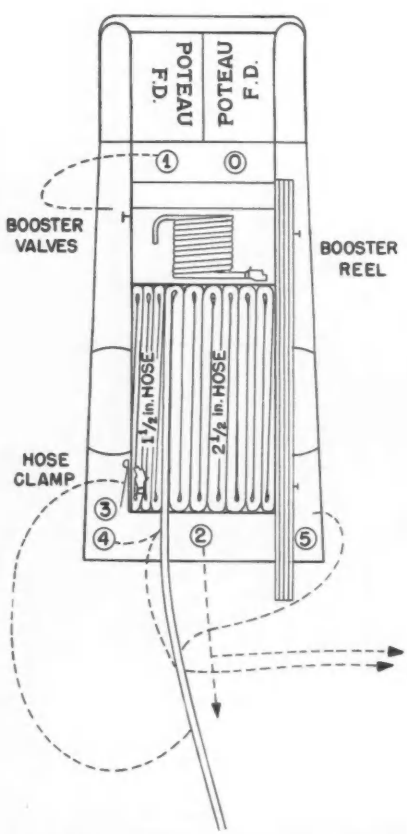
Team Play in Fire Fighting

Plan for teamwork in performing fire fighting evolutions developed by Chief Amos Rowley of the Poteau, Oklahoma, Fire Department, and bulletined to the Oklahoma Fire Service by Chief Fire Instructor George Orgain, Engineering Extension, Oklahoma A & M College.

A VOLUNTEER Fire Department organization may be compared to that of a football team. Its successes like that of the team depend upon its plays and how well they are executed. Do you have any plays, or do you just load up and run?

A team without plays is certain to fumble and may even run in the wrong direction. Yardage gained is an accident rather than a planned coordinated drive. So it is with the Fire Department that has no organized attack. They are sure to fumble, "pass the buck" and may even loose the ball. Any success such a department may have is purely accidental. Let us plan our plays and coordinate the attack.

In planning the organization the first step would be the selection of personnel. Do not just take any Jack, Jim, or Tom because he has indicated his desire to be a member of the local department. Chances are, his knowledge of the Fire Department is just what he has seen when the truck went by in response to an alarm. To insure the success of your department hand pick your personnel taking into consideration the nature of the work this man performs for his living, his position in the community, his holdings, his physical condition, and his availability. But, immediately the alibi arises, "I have trouble getting men, I am lucky to have anyone." The trouble is then that you have failed to plan your department, to publicize its function and importance and to show the people it is the biggest business in your community. Like the football team, the Fire Department is no stronger than its leaders. Is your department one in name only?



Play No. 51, Poteau, Okla. Fire Dept. A five man evolution.

Lay No. 51
(Straight lay of 2½" hose)

0 Officer
Checks plan of attack.

1 Truck driver
Operates pump and charges booster line.

2 Hydrant man
Catches hydrant and checks hose line back to fire and helps where needed.

3 Clamp man
Installs hose clamp. Straightens out hose as No. 4 and No. 5 advances to fire. Releases hose clamp. Can act as ladder or foricble entry man.

4 Nozzle man
Dumps hose load. Uncouples hose and installs nozzles with the help of No. 5. Advances to fire w'th No. 5.

5 Nozzle man
Picks up nozzle. Uncouples hose and installs nozzle with the help of No. 4. Advances to fire with No. 4.

The nature of the employment of the prospective Volunteer has little bearing in his selection for service on the Volunteer Department so long as he is "tops" in his line of work in the community and is available for service the greater part of the time. Of course it is desirable for the men to have mechanical aptitudes, and certainly the construction trade, electrical work and automobile industry is a good source to choose from. If he has holdings in the community, his interest in fire protection is going to be more sincere and, don't forget his ability to go to "bat" in matters of government.

Second, give the selected personnel performance tests to determine where they are best suited to work. A test which might be used for selecting ladder men would be to place a wall or roof ladder horizontally on jacks, two or three feet off the ground, and have the men walk the rungs so that you may determine their sense of balance, then place a ladder in position for climbing and have the men go over this to determine their natural ease in climbing. Last, bridge with the ladder from an elevation of one or two stories and have the men cross to determine their reaction to height. From such a performance test, you should be able to pick the men for training on your ladder company.

Men selected from the building trade will probably be best used on forcible entry and ventilation because of their knowledge of building construction. These and many other such performance tests will help you place your men where they are best suited. You have to try out for guard, tackle, end, or quarter back on the football team and after playing a while your position may be changed to improve team play. The same thing surely is true with your Fire Department assignment of personnel.

Now let us set up a few plays for the first attack using only the triple combination pumper. The plug catcher, nozzle man, hose man, ladder men, and forcible entry men, should have positions assigned on the truck in relation to their equipment and the equip-

ment so arranged on the truck, that the least possible amount of crossing or interference with each other is possible. Therefore, you have truck positions in fire fighting just the same as you have positions on the football team. It is not always possible to have the ideal situation on the Volunteer Department, namely that of having the selected man in his position each time an alarm is reported. Therefore it is necessary that each man on the department be so trained that he can substitute on any truck position until the first phase of the attack has been completed. Then it may be possible to switch men to selected positions if necessary. When the men know their plays, the officer has time for sizing up and planning rather than using his efforts for getting a charged line in action.

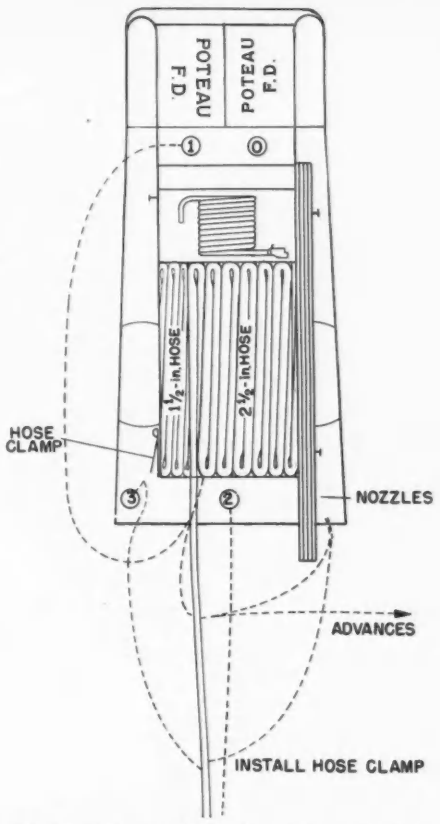
Let us set up the truck positions according to a specified load and equipment arrangement. As we work our plays with a smaller company, you will notice that the positions have a sequence of importance. That is, you must have a driver. Next of importance may be the plug catcher, nozzle man, clamp man, ladder men, forcible entry men, etc. These positions are filled according to numbered sequence as shown on the diagram of the truck.

Space will not permit more than a few plays to give you the idea of what is possible in planned attack. So I will show you our plays No. 51 and 31. The first number (5) indicates the number of men available; the second (1) indicates a straight lay of 2½-inch hose.

When laying the 1½-inch lines, the second digit of the play number might be 2. Then if you were laying 1½-inch hose using five men, the number would be 52.

At the beginning of the football season, fundamentals are stressed and a few simple plays are given the team. But as the team develops, more complicated plays are given. So it is with the fire department work on fundamentals and simple first attack plays until you get the knack of working on a planned coordinated drive, then your department may develop more complicated plays using more than one piece of equipment and coordinating several companies.

Your organized future depends on you and the effort you put forth. Will your community know your department because of "The sign over the door," or because of your success from a well planned organization.



Play No. 31, Poteau, Okla. Fire Dept. A three man evolution.

Lay No. 31
(Straight lay of 2½" hose)

0 Officer
Checks plan of attack.

1 Truck driver
Dumps hose load. (No. 3 helps No. 1 uncouple hose and install nozzle. Releases hose clamp.

2 Hydrant man
Catches hydrant, checks hose line back to fire and helps where needed.

3 Clamp man
Installs hose clamp. Helps No. 1 uncouple and install nozzle. Advances to fire with hose line.

The Little Valley, New York, Fire Department

Report by Secretary Albert Andrew

LITTLE VALLEY, New York, is the county seat of Cattaraugus County and the main industry is the manufacture of cutlery, of which there are two factories. The population was 1,234 in the latest census.

The Little Valley Fire Department (NFPA member) is in the charge of Chief Richard C. Merow and consists of 40 active volunteers. There are two assistant chiefs and a captain and lieutenant for each truck. The members elect the officers annually.

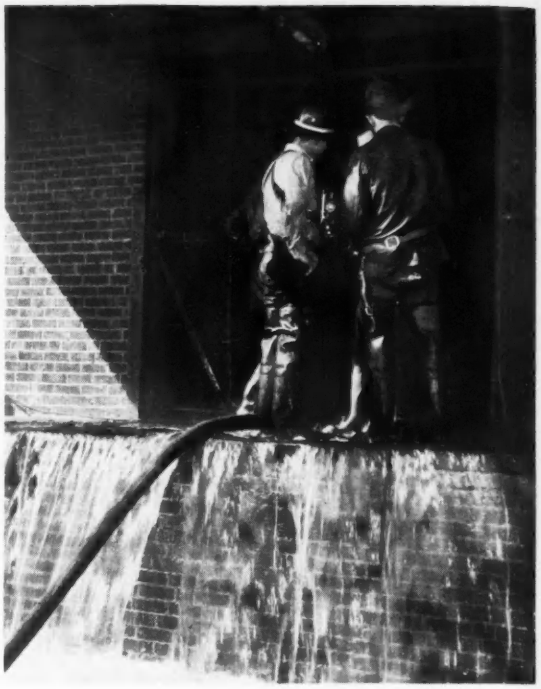
The equipment consists of four pieces of apparatus. No. 1 is a 600 gpm American-LaFrance triple combination pumper, delivered in 1924. It carries 1,000 feet of 2½-inch hose, has a 120-gallon booster tank and 150 feet

Continued on page 21

SALVAGE WORK

by Vernon F. Bradon, Salvage Company 27 "A"
Los Angeles California, Fire Department

Reprinted by permission of the Los Angeles Firemen's Relief Association, Inc., owners and publishers of the "Firemen's Grapevine," in which this article originally appeared. This is the concluding installment, the first of which appeared in FIREMEN *for April, 1947.*



Disposing of thousands of gallons of water is a major fire fighting problem.

SALVAGE OPERATIONS AT FIRES

ONCE the alarm has sounded, salvage operations can be divided into two parts, those carried on during the fire and those done after the main body of the fire has been extinguished. Those functions which must be performed during the fire are the spreading of covers, bagging of floors, diverting and removing water, and ventilating. These may be considered in this order.

In his initial size-up, the salvage officer must first locate the fire and then work immediately below it, estimating the amount of water needed and then taking steps to prevent damage. Cover work should be started directly under the fire, then branched out as much as time and number of men and covers available will permit. If it is evident that the water will extend below, the floor being covered, then the next lower floor must also be covered. A general rule is that stock should be covered first and then machinery, but an exception to this is a linotype machine. In covering stock, cover first the articles most susceptible to water damage, or the most valuable. In covering furniture in residences, the furniture should be moved together away from the walls and then covered. In the ordinary room, one 12- x 18-foot cover will suffice. Clothing should be removed from closets and placed under the covers, as should pictures or mirrors hanging from the walls. Articles of value can quickly be placed in drawers of dressers or chests before covering. Costly draperies and curtains should be placed under the covers. Cover work should be done before water damage starts — every minute is important.

After the covers are laid, constant patrol is necessary to see that no fire falls on the covers and burns them. Covers should be placed with care to avoid tearing. Also, it is essential to avoid wetting the underside of the cover before placing it over any article to be covered. Covers should never be spread over broken glass or other sharp pieces of debris. If the fire is in a chimney, the fireplace opening should be covered to prevent water and debris from falling into the room. For cover work, men working in pairs are most efficient, and for this reason a salvage crew of six or eight men is needed.

Covers are used extensively also in the next two salvage operations, bagging floors and diverting water. Floors are bagged by building catch-alls beneath places where water has started or is most likely to come through the ceiling. These are very effective in controlling the water in a residence or small shop where not too much water is needed in extinguishing operations. They are made by stretching a cover over chairs or other articles of furniture with enough slack in the center to bag, or by rolling the edges inward and then spreading sawdust along these to form a pocket. Here the initiative so essential in a good salvage man must be exercised. The work must be done with the materials at hand. In covering larger floor areas, a water seal can be made, using sufficient covers to extend over the area to be protected. In large places where much stock is stored, the aisles between the aisles of stock can be bagged, after the stock has been covered, and the water then made to drain into the aisles.

In larger fires, where much water is needed, immediate steps must be taken to remove this water to prevent both excessive water damage and the collapse of the floor. Here the floor drains and scuppers come into use. If not clogged, these will handle a portion of the water. Covers may be used to construct stairway drains. Water may be directed into the elevator shaft, after the machinery, if it is located in the basement, has been covered, and later removed with a syphon ejector or a cellar pump. A good sized hole cut through the floor over a ladder drain directed out a window makes a very effective method of removing large quantities of water. In many cities, ten foot knockdown canvas chutes are carried by salvage companies for this purpose. Pike pole drains are effective in small rooms, when directed out a window or other opening to the outside. Here, also, a simple window drain may be made by hanging one side of a salvage cover from a wall opposite a window and sloping the other end out of the window, tying it in place with salvage cord. This last drain is especially effective in residences, where one cover will drain an entire room. If the construction of drains necessitates constant running in and out of the building, floor runners should be laid to prevent tracking mud and debris across floors and carpets. These are 6- x 18-foot waterproofed canvas covers rolled two together in 3-foot widths.

Sawdust is one of the best materials known for combating water damage and for diverting water for removal. Dikes and dams of sawdust can be

built up to keep the water flowing in direct channels to drains. It is also effective in picking up water during overhauling operations, particularly under counters, display cases, machinery, and other places difficult to reach with a squeegee or broom.

From a salvage standpoint, ventilation is not only an important phase of fire extinguishment, but it is also necessary to provide a circulation of air to assist in drying out wet materials. Salvage companies in the Los Angeles Fire Department carry smoke ejectors for use in ventilating. These are very effective in drawing smoke and gases from premises where interior fires are combated.

After the main body of the fire has been extinguished, salvage operations consist of removing water from floors and basements, drying of machinery, furniture and stock, removing articles of value from debris, and covering roofs, if necessary. These functions are lumped together in the term "overhauling." This is started as soon as men are available for the task. It is one of the most important phases of fire fighting. The public relations value of leaving the premises in the best possible condition is inestimable.

Basement drainage may be effected by utilizing floor drains, soil pipe from roof drains broken off at basement floor level, or by removing toilet bowls and, after placing a screened guard over the hole, diverting the water into it. Some salvage companies are equipped with a 250 gpm centrifugal pump for use in pumping excessive amounts of water from basements or elevator shafts. Syphon ejectors are also used for this purpose. Lifts of 30 to 35 feet are possible with this ejector. A minimum pressure of 25 pounds is necessary.

In removing water from floors, the tools used are the squeegee, corn broom and sawdust, mops and mop-wringer, shovels and buckets. The squeegee is most effective in large areas, while sawdust is ideal for use in out-of-the-way places. Corn brooms may be used to sweep water into an outlet, and with an open scoop shovel, to pick up sawdust. Mops are effective for small amounts of water on small areas only. The open scoop may be used to remove water from rugs and carpets, and the closed scoop is used to scoop water into buckets or other containers for removal. Portable lights are carried by salvage companies for use when working in darkness.

Considerable salvage can be obtained by the use of sponge and chamois to wipe furniture and fixtures. This prevents the finish from being spotted and ruined. Wet paper coverings should be removed from stock to prevent further damage. In an eastern city, a small fire in a sprinklered building where new desks were stored ruptured three heads. The resulting fire damage was negligible, but many of the desks were considerably damaged because the wet paper wrappings had not been removed and the desks wiped dry. Machinery should be carefully dried and later oiled to prevent rust.

THE salvage officer should know the probable salvage value of different kinds of merchandise and equipment and to what extent they will be damaged by smoke, fire and water He will be able to determine the order in which such merchandise and equipment should be worked over. In this operation much cooperation and assistance can be secured from the owner of the property, if available, because of a clause in the Standard Fire Insurance Policy which provides that the owner must protect his property from further damage after the fire has been extinguished. This assistance is of great value after fires in industrial plants, mercantile stores, and public buildings. However the owner should be advised as to the necessary steps to be taken.

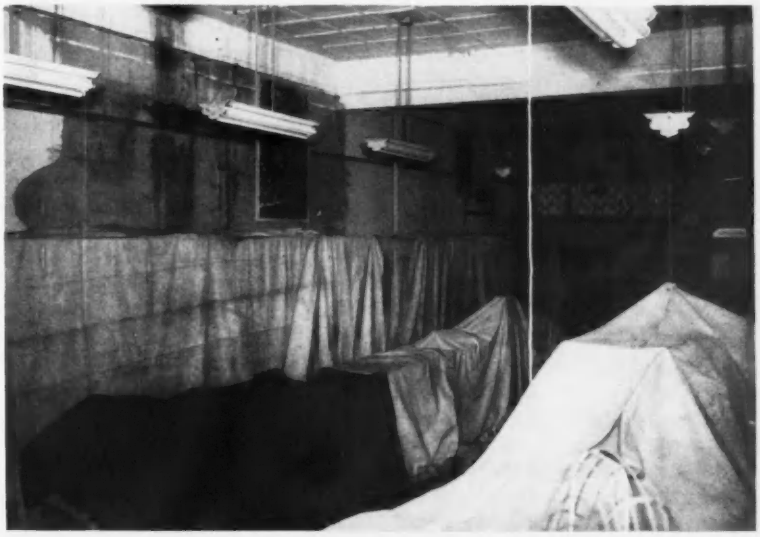
If the fire has burned through the roof, or if holes have been cut for ventilation purposes, the roof must be covered after the fire has been extinguished in order to protect the interior of the premises from the elements. This is done by using roofing paper, carried on most salvage companies, or by spreading covers over the open portions of the roof and nailing in place with laths or boards, taking special care that the nails go through the grommet holes in the cover. There is usually enough scrap wood available after a fire for this operation. Entire roofs may be covered. Broken skylights should be covered in a like manner. Much appreciation has been voiced by property owners whose premises have been so protected. If the roof has been so badly burned as to be unsafe, the attic or the top floor should be bagged.

In picking up after a fire, members of salvage companies should exercise due care to make certain that the contents protected during the fire are not damaged by spilling water and debris on them while removing the covers. Covers should be carefully folded with the water and debris inside and shaken out after the covers have been removed from the premises. Care must also be taken to avoid breaking articles while removing covers. To insure maximum protection, covers should not be picked up until all the water stops dripping.

As a means of protecting covers, stairway drains should be picked up as soon as practical to avoid unnecessary walking over the covers. Floor runners can be placed on the stairs to prevent tracking mud and debris up and down them. Also as a precautionary measure, covers should never be thrown from windows, but should be carried from the building.

Continued on page 18

A good salvage job saved thousands of dollars worth of stock in this store.



Making a Good Job of It

Fog-Straight Stream Nozzles

By Warren Y. Kimball

MODERN fire departments are using their all-purpose fog-straight stream nozzles with increasing frequency. To some extent this may appear to complicate the friction loss tables which most firemen have memorized. For example, certain types of combination nozzles do not have an actual solid stream, but merely provide an adjustible cone of spray that resembles a solid stream. These may, in some cases, deliver as little as 75 gpm from a 2½-inch line. This is the equivalent of a ⅝-inch tip on the 1½-inch line.

All-purpose nozzles for 2½-inch hose having an actual solid stream orifice, in general use a 1-inch opening for the solid stream but the discharge from the fog heads usually is considerably less than the solid stream from the same nozzle assembly. Consequently the smaller flow with the fog discharge results in less pressure loss in the hose due to friction and more pressure at the nozzle with the same pump pressure. In general, this is desirable because for best results fog pressures should exceed the normal pressure for hand operated solid streams. However, when lines are short and high pressure is being supplied to a fog jet, a hose crew shifting quickly to a solid stream may find that it has more nozzle reaction than it cares to handle. With 1½-inch hose and booster lines, nozzle reaction when shifting from one type of jet to another is not an important factor.

A change of 20 or 30 pounds nozzle pressure is seldom of major importance with small lines. However, the 2½-inch hose under high pressures requires care when changing the velocity of the jet because the reaction will be somewhat similar to opening a nozzle too quickly.

As an example, we may assume that a certain fog nozzle requires 90 psi nozzle pressure and when discharging fog may result in 5 or 6 psi friction loss per 100 feet of 2½-inch hose. With a 200-foot line, if we shift to the 1-inch solid stream the friction loss will increase to perhaps 13 psi per 100 feet leaving about 75 psi nozzle pressure and a straight stream discharging better than 230 gpm. This is almost the equivalent of a 1⅛-inch tip at normal hand line pressure. It should be recalled that when the nozzle is suddenly opened the initial reaction will be that of the higher pressure at the fog head.

In view of the foregoing, it would seem desirable to find some constant pump pressure that we can use under average conditions and get reasonably good results with either fog or straight streams from the same nozzle without keeping the pump operator constantly adjusting the pressures. Perhaps if we start with 100 psi pump pressure for all 2½-inch lines using all-purpose nozzles where lines do not exceed 300 feet and then add 10 psi for each additional 100 feet we would not be far wrong. One large fire department that has conducted some experiments along these lines has come up with the following suggestion:

For Class "A" Fires (ordinary combustibles):

100 psi plus 5 psi for each 100 feet 2½-inch hose for layouts up to 1,000 feet. On very short lines care must be exercised in shifting to straight stream.

This will give fog pressure of slightly over 100 psi with delivery of 115 gpm, and a solid stream pressure varying from 45 to 80 psi on the 1-inch straight stream.

For Class "B" Fires (flammable liquids):

125 psi plus 5 psi per 100 feet 2½-inch hose. For lines of under 300 feet extra care must be exercised in shifting from fog to straight stream.

The above formula results in a fog delivery of 140 gpm with the nozzles tested and pressure from 42 to 90 psi on the straight stream.

ANOTHER suggestion has been made that if the solid stream orifice was bored out to 1⅛-inch for the 2½-inch all purpose nozzle, the friction loss when using the solid stream would be greatly increased and this would provide a safety factor to help use up the excess pressure needed for the most effective fog. Actually a 1-inch tip is rather small for solid stream work with 2½-inch hand lines. If fires cannot be handled with 1½-inch hose there is seldom much advantage in bothering with a 1-inch tip on the 2½-inch line. In a number of departments the general practice is to employ at least 1⅛-inch tip, if not the 1¼-inch tip, on fires that are beyond the control of leader lines. Several chiefs experienced in handling large fires recently have expressed the opinion that if a fire was beyond the control of small streams it was time to set up effective heavy stream appliances. However, a greater diameter of solid stream orifice might provide a more difficult problem for a shorthanded hose crew when shifting from fog to solid stream.

A number of civilian and U. S. Navy fire chiefs consulted regarding the proper pressure for fog jets used on Class A fires (ordinary combustibles) expressed the opinion that 50 to 60 psi at the nozzle gave a satisfactory fog to protect the hosemen and to permit the line to advance. It was pointed out that while 80 to 100 psi provides a better fog, higher pressures sacrifice mobility.

* * *

George W. Elliott Director of Automatic Sprinkler Association

MR. GEORGE W. ELLIOTT has been appointed Executive Director of an expanded National Automatic Sprinkler and Fire Control Association representing all manufacturers of approved devices in the industry. The industry intends to develop new and improved automatic sprinkler systems to control the increasing hazards of business in general, and to extend the installation of automatic sprinkler protection so that the enormous unnecessary fire waste may be minimized.

Mr. Elliott has been actively associated with fire protection and prevention for about 37 years. He was Fire Marshal for the city of Philadelphia, later Director of Public Safety of that city. He has been identified with the N.F.P.A. for many years having been an officer since 1932, serving as President 1936–38, and Chairman of the Board since 1944.

He has also been identified with the National Safety Council and is Chairman of the Executive Committee of the National Fire Waste Council. For a number of years Mr. Elliott has served as General Secretary of the Chamber of Commerce and Board of Trade of Philadelphia, leaving that organization for his new post.

"Who's Who" on the NFPA Staff

This is the seventh in a series of staff portraits of the guiding lights about the NFPA Executive Office at 60 Batterymarch St., Boston. These are the men who write and edit the books, magazines, posters, and pamphlets published under the insignia of the National Fire Protection Association. These are the men to whom you can turn for answers to your fire fighting, prevention, or protection problems.

JAMES K. McELROY joined the engineering staff of the NFPA in August, 1945, following his return from a two-year fire research assignment to the Research and Experiments Department of the British Ministry of Home Security at Princes Risborough, England by the American Foreign Economic Administration. The R. & E. Dept. served both the AAF and RAF with weapon effectiveness and target vulnerbility information on enemy cities and industrial targets. During college vacations and immediately after graduation from Michigan State College in 1928 Mr. McElroy joined the staff of the Bryant & Detwiler Construction Company in Detroit, Michigan, as an assistant mechanical engineer on department store, office building and hospital projects. In 1930–31 in company with other American engineers, Mr. McElroy was engaged by the Russian Government to participate in the construction of a large tractor factory and supporting residential development at Cheliabinsk, Siberia, east of the Ural Mountains. Charged with the supervision of the installation of water mains, it was a shock to learn that water mains had to be covered 9 feet deep to be below frost line! Pouring concrete at 40 degrees below zero in the winter time, required protection for the concrete as well as the ears! Jim says, "We had two weeks of poor sleighing in August!" Jim likes to "eat regularly" and in 1933 he left the construction industry to appraise farms (he had milked a cow on a small Minnesota farm as a boy) and in 1935 joined the fire prevention and protection engineering staff of the Michigan Millers Mutual Fire Insurance Co. of Lansing, Michigan. He brought to this work, considerable construction and appraisal experience of value in inspection activities, but he had to learn about fire hazards the hard way. Two years were to elapse before a "called shot" on a poor risk occurred, through the credit experience in the appraisal of farms paid off in the detection of moral risks early in the game. The inspection of all classes of risks from residential buildings through those occupancies in which highly special hazards were involved sharpened the knowledge and ingenuity required to cope with the fire prevention, protection and safety of the occupants and property in the War Housing Program inaugurated in 1941.

As Chief, Fire Prevention and Safety Section of the Federal Public Housing Authority, Mr. McElroy traveled thousands of miles in inspection and correlation of fire protection and prevention and safety programs eventually to involve well over two thousand war housing projects, involving conventional construction and prefabricated construction of houses, dormitories, schools, theaters, mercantile buildings, fire and police stations, etc. In this work Mr. McElroy came to know and appreciate the work of the fire departments throughout the country, who in almost every instance were extremely cooperative in the protection of lives and Government property. Jim puts it this way, "I only wish that as a fire insurance engineer I had known how valuable the advice and assistance of fire department and building department officials could be. Had I realized that we could all work together to improve the inherent hazards and the knowledge of the peculiarities of water supplies, access to the risk, possibilities of delayed detection of fire, etc., I am sure I could have measurably improved the loss record of my employer and his clients."

Since joining the NFPA staff, Mr. McElroy has been appointed Secretary of the Committee on Hotel Fire Safety of the NFPA Fire Marshal's Section, Secretary of the NFPA Committee (ASA-A54) on Building Code Requirements for Fire Extinguishing Equipment, and is the alternate to Mr. R. S. Moulton (NFPA Technical Secretary) on the Committee on Building Code Requirements for Fire Protection and Fire Resistance.

Chemical Plant Blaze at Orlando, Florida

THE firemen of Orlando, Florida, had the unpleasant duty of fighting a chemical plant fire on September 11. Employees were on duty when fire broke out, presumably due to spontaneous ignition. The telephone in the building was out of order. The telephones in the vicinity were also out of order. The nearest fire alarm box was two blocks away and was not used.

When firemen arrived the entire building was involved. It was impossible to enter the structure as there were acids on the floor and fumes and gases in the building. Three engine companies used four 2½-inch lines and 1½-inch lines with fog and straight streams. Nine firemen were sent to the hospital for precautionary treatment according to Chief M. G. Bennett. The loss was approximately $35,000.

Jerome Arizona, Volunteers Face Unusual Situation

THE Jerome Volunteer Fire Department (Member NFPA) protects a mining community of closely spaced frame buildings on the side of a precipitous mountain. The roofs of one building are frequently below the basement of the next structure.

There are 45 volunteer firemen under Chief John J. Toci, organized into three companies each with a foreman and assistant foreman elected by the department at large.

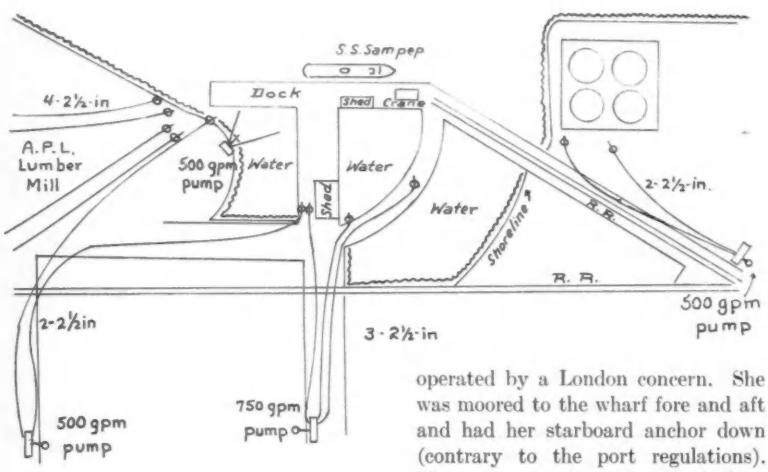
The firemen serve without compensation but the city donates $35 and the mining company $10 monthly for the social activities of the department.

There a hose and booster truck and a hose and ladder combination. An excellent water supply provides hydrant pressures of 300 psi or more.

$3,000,000 Waterfront Fire at Alberni, B. C.

This account is taken from data furnished by Assistant Fire Marshal W. Percy Nicholls of Vancouver, B. C. and Fire Chief W. P. Venables of Port Alberni, B. C.

THE 1,000-foot-long Canadian Government Assembly Wharf at Port Alberni, B. C., extending obliquely from shore to deep water, was constructed of creosoted timber piling and decked with 4 x 12-inch untreated planks. No fire stops had been erected beneath the decking nor had any other fire prevention or protection been included when the structure was hastily constructed during the war. A wide 100-foot-long ramp of similar construction jutted out from shore at right angles and connected with the midpoint of the wharf. Since this wharf represented the only link with ocean shipping available to the many small logging, lumber and plywood companies in the Port Alberni section of Vancouver Island it is easy to understand the serious consequences to those companies and their employees following destruction of the wharf by fire.



At 9:00 A.M. on August 25 the doors of the large-area unsprinklered warehouse on the shore end of the ramp were thrown open and workers immediately started transferring its contents of 600 tons of plywood to the S.S. *Sampep*, moored at the wharf. The plywood had been wrapped in heavy paper in 300-pound bundles and the outsides of the parcels were waxed to facilitate handling. No attempt was made to control indiscriminate smoking practiced by employees and others in and around this warehouse. About 300 tons had been transferred at 5:00 P.M. when the men quit for the day. The wharfinger locked the warehouse, checked over the wharf and went home, leaving the property unguarded during the night, as was his custom.

Shortly after 6:00 P.M. a fisherman headed for the wharf where his small boat was tied. Coming up to the warehouse he noticed smoke issuing from a corner and called back to his wife to telephone the fire department. He then ran past the warehouse up the ramp to the *Sampep* for help but strangely, none of the officers or crew were interested in assisting.

The S.S. *Sampep* is a 10,000-ton Liberty freighter loaned to Great Britain by the United States and operated by a London concern. She was moored to the wharf fore and aft and had her starboard anchor down (contrary to the port regulations). There was no steam in the boilers. The *Sampep* had loaded 2,500 tons of grain and 2,600,000 feet of lumber at other ports and was taking aboard the plywood and a deck load of 2,000,000 feet of lumber at Port Alberni. About 1,500,000 feet were on the wharf beside the ship, yet to be loaded.

FIRE CHIEF W. P. VENABLES received the alarm at 6:15 P.M. and the Port Alberni Volunteer Fire Department (member NFPA) proceeded at once to the wharf closely followed by apparatus from the Alberni department. The fire was breaking out of one corner of the warehouse but before lines could be placed the entire warehouse burst into flame and fire spread rapidly beneath the decking through the piling to the wharf where it enveloped the lumber and a small wooden warehouse. The chief appealed to the *Sampep* crew for assistance but they were indifferent to the seriousness of the blaze and the imminent danger to their ship.

Equipment of the two fire departments at the fire consisted of three pumpers, a trailer pump and a fire boat. Chief Venables soon realized that the wharf was beyond saving and placed his lines so as best to confine the flames to the wharf property. The three pumpers took water from public hydrants and supplied seven streams. The trailer pump was placed at the water's edge and supplied another line. Four lines took water directly from yard hydrants of the Alberni Pacific Lumber Co. Two lines from one of the pumpers were used to protect the tanks of a nearby bulk oil storage farm.

Chief Venables next devoted his attention to the *Sampep* whose superstructure was now afire. His men tried valiently to extinguish the ship fire but received little if any assistance from the ship's captain and crew. This indifference is unexplainable and was believed by Fire Chief Venables to be a principal reason for extensive damage to the ship. It is reported that when the deck load caught fire the captain gave order to abandon ship and several men jumped overboard and swam to shore or were picked up by boats.

A local welder was summoned to cut through the anchor chain. The ship could have been freed immediately if its crew had removed the anchor windlass pin. The wharf fire had by now developed to an inferno and the intense heat forced land crews to retreat with their lines. A tug brought the fire boat alongside, and hose lines were put aboard the *Sampep*. When the anchor chain was finally cut tugs moved the *Sampep* and fire boat some distance from the wharf where the fire which had eaten into No. 2 hold was eventually controlled. No other holds were damaged but the superstructure was destroyed and starboard plates were badly warped. Two days later the ship was able to sail under her own steam to Victoria for repairs, due to the efforts of the firemen.

Dry combustible construction, lack of fire stops and difficulty of access early doomed the wharf to destruction

as flames swept it from end to end, destroying the wharf decking, 1,500,000 feet of lumber, a large electric crane, the two warehouses and three gondola railroad cars.

The cause of the fire received considerable attention from investigators. The manufacture of plywood bonded with phenolic resin required heating to 270 F. and the plywood is sometimes still hot when stored. The 600 tons in question, however, had been in storage in the warehouse from fourteen to twenty-eight days and had ample time to cool. The comments of several witnesses indicating that no efforts at control of smoking was attempted by wharf and warehouse authorities suggests the most probable cause to be careless smoking. Damage to the wharf and contents was total $1,585,000 and loss to the *Sampep* and its cargo may bring the total to $3,000,000.

MEMBERSHIP REPORT

TEN years ago, in November 1937, the number of volunteer fire companies in the Volunteer Fire Company Section of the NFPA stood at 560. This figure increased to 762 companies in November 1942, and is 1,358 at the present time. The number of member volunteer firemen ten years ago was 12,415; in 1942 it rose to 15,258 members and now has increased to 21,373.

New members of the Volunteer Fire Company Section are:

Bowmansville Vol. Fire Assn., Inc., Bowmansville, N. Y.
Florissant Valley Vol. Fire Dept., Florissant, Mo.
Independent Fire Co., Valhalla, N. Y.
Knoxville Community Fire Dept., Knoxville, Ill.
Westmoreland Fire Dept., Westmoreland, Calif.
Grant Town Vol. Fire Dept., Inc., Grant Town, W. Va.

NFPA Membership Plan

VOLUNTEER FIRE COMPANY SECTION

($10 annual dues) Eligible:

(1) all bona fide volunteer fire organizations in any community.

(2) all fire departments and companies in communities of less than 25,000 population.

(3) all industrial fire brigades.

Member volunteer fire companies receive ten copies of FIREMEN magazine each month, mailed to the homes of individual firemen. Beyond the ten, additional copies of FIREMEN cost $1 per year.

Volunteer Fire Company Section members, receive, at their headquarters, one copy of all publications sent to NFPA associate members.

ASSOCIATE MEMBERSHIP ($10 annual dues) Eligible: Individual fire department officers, firemen, and others interested in fire safety. NFPA associate members in the fire service receive: one copy of FIREMEN magazine monthly, the NFPA **Quarterly,** the monthly **News Letter,** technical standards, popular bulletins and posters.

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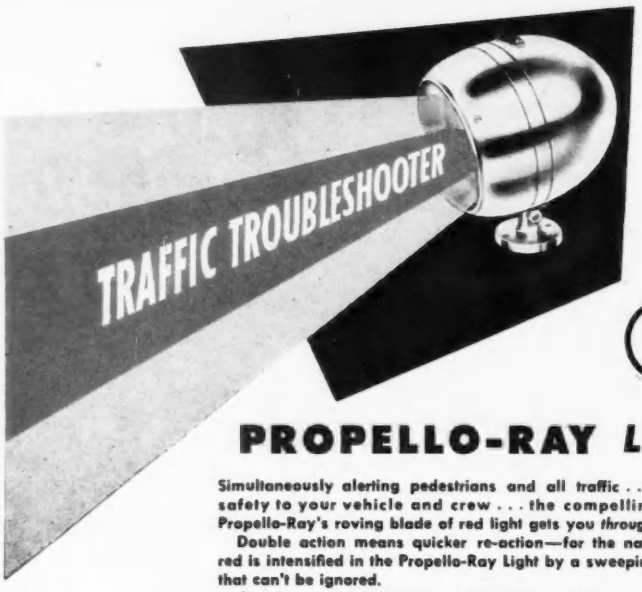

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Fire Fighting History in Vienna, Austria

Continued from page 6

May, 1884, the town council adopted a scheme formulated by the municipal architect. He frankly recommended the transfer of the fire brigade from his department and its organization as an autonomous unit on military lines. The following November this decision was implemented by the engagement of specialist-officers. The establishment now was 7 officers, 200 other ranks, and 101 workmen.

In 1903, the municipality, without stinting, provided money for the motorization of appliances and in this way enabled the fire department to keep pace with rapidly increasing fire hazards. In 1919, the department was using wireless telephony as an adjunct.

At the end of World War I, there were 1,150 of all ranks and 120 motor vehicles distributed among the fifteen fire stations, and the services of the brigade were restricted to the centre of the city, or Old Vienna.

Fire protection in the outer areas was left to forty-five volunteer fire brigades over which the city fire department had no authority. Reorganization of these volunteer units began in 1925, and within the next thirteen years the number of stations rose to thirty-two, of which seven were key or principal stations. Seven others were manned solely by volunteers.

Early in 1938, the Vienna Fire Brigade consisted of 24 officers, each a certificated engineer, 1,032 other ranks, 11 clerks, and 6 women housekeepers. The mobile appliances numbered 213, of which 14 were mechanical ladders, plus a large number of special appliances.

Nazi Domination

In the autumn of 1938, Vienna had absorbed ninety-seven neighboring municipalities and had become Greater Vienna. Lack of time, however, had prevented reorganization of the fire defences of the ninety-seven absorbed communities and the drafting to them of a number of professional fire fighters.

So, at the outbreak of war, these outer parts of Greater Vienna were still relying on voluntary systems of fire protection. The Germans, however, were quick to assume control and to make drastic changes in personnel, training and even materiel.

On the night of March 6–7, 1945, the chief of police ordered all firemen to leave Vienna, cross the left bank of the Danube, and march to the west. Apart from the sick, eighteen firemen with three mobile appliances remained to maintain some sort of service.

Aftermath of War

At the cessation of hostilities, nine of the thirty-two district stations were grievously damaged by bombardment; all appliances and gear had disappeared; fire alarms, telegraphs and telephones were all out of action. The fire fighters sent marching west by the German police chief returned to Vienna in small bands. By May 15, 1945, 651 officers and men were at their posts.

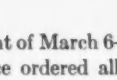
Materiel consisted only of eight motor appliances and some portable trailer pumps. Thanks to constant effort and to American aid, more motor vehicles reached the city. The volunteers in most of the ninety-seven annexed municipalities resumed their activities.

The New Regime

In July 1945, the Regner Govern ment abrogated all German legislation affecting the Fire Service and restored, with vigor, the Austrian law of 1938. Thus the Vienna Fire Brigade was enabled to become an example to the community as in the days of its birth. Today it is divided into five divisions. The expenses of the brigade are provided from the budget of the city's superior administration. A part of the cost is met by payment for certain special services and by a contribution from the fire insurance interests. The brigade is commanded by Fire Director Holaubeck, an expert technician and all-round fire engineer, who entered the service of Vienna as a fireman on November 1, 1928.

Of the eight officers of the brigade, seven have passed through the Higher Engineering School; the other is an officer of army engineers. The average age is 47 years. They are regarded as officials of the city.

The establishment today is: the fire director; seven officers; 73 superintendents; 279 district or station officers; and 625 firemen; a total of 985 effective fire fighters.



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FIRE-FIGHTING Equipment!

Yes sir, chief of them all for putting out grass, rubbish, forest, roof, room, building and Class A fires! INDIAN FIRE PUMPS are famous for the fast way they go into action and win the praise of all who use them. Here's an example:

D. B. SMITH & CO., Utica, New York

I have used INDIAN FIRE PUMPS as a member of the local fire department and have nothing but the highest praise for them. They are not too heavy and carry enough water to cover an extensive area.

Paul S. Ney

How is your supply of INDIAN FIRE PUMPS? Do you have plenty? Order now. Catalog and price list will be sent on request. Write us today for full information.

Properly formulated wetting agents may be effectively used in INDIAN FIRE PUMPS, including those having galvanized steel tank now coated on the inside with asphaltic base paint.

Pump throws pressure stream 30 to 50 ft. or nozzle adjusts to spray or fog mist. 5 gal. tank carries slung on the back. Extra strong construction throughout.

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OKLAHOMA CITY

Goes CIRCUL-AIR

Twelve (12) new C-500 Circul-Air Hose Dryers have recently been delivered to the Oklahoma City Fire Department.

They will be installed in 8 of the Cities new Fire Stations, authorized, with other equipment, to completely modernize the Department under a $1,250,000 building and equipment program. Chief George R. McAlpine decided to eliminate hose towers and rack on all new stations after investigating the 8 Circul-Air units installed at Memphis, Tennessee.

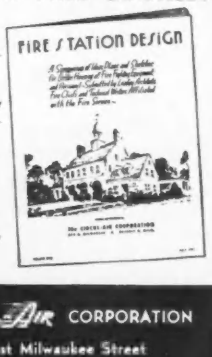
CIRCUL-AIR THE AIR-CONDITIONING

FIRE HOSE DRYER

- ✓ Saves building costs—Improves design
- ✓ Dries hose in a few hours
- ✓ Saves space—Fits in any corner
- ✓ Keeps all hose in service
- ✓ Makes good hose last longer
- ✓ Elminates the hard work

WRITE FOR FREE BOOKLET

New 24-page booklet shows illustrations and plans of smart, new, functionally designed fire stations. Needed by every Building Committee, Fire Chief and Fire Department Architect. Your free copy is now available.



THE CIRCUL-AIR CORPORATION
575 East Milwaukee Street
DETROIT 2 ❖ MICHIGAN

New York University Has Course in Fire Protection Engineering

THE Graduate Division of the College of Engineering, New York University is presenting graduate courses in safety engineering and fire protection engineering. These are in the graduate school and are an attempt to present fire and safety curricula so that graduates will be fire and safety conscious in the practice of engineering.

The fire course is on a high plane and is not intended to compete with schools aiding men obtain fire department promotions. The course is given by Edward J. Kehoe, Fire Marshal of the Third Naval District, a former member of the New York Fire Department, a graduate engineer and Lieutenant in the United States Navy.

The first group of approximately fifteen students includes three officers from the New York Fire Department, officers from the Ground Safety Branch of the U. S. Air Force who are on detached duty to obtain Masters degrees in engineering, and representatives of industry.

* * *

Salvage Work

Continued from page 11

In overhauling, debris should not be removed from the premises. It may be removed from the building, but should be piled where it can later be worked over by the owner for articles of value. This debris may also be a great asset to the fire insurance adjuster in determining the extent of insured contents destroyed. Undamaged or partially damaged stock should be moved to one side, in a cleared space, and left, because it may have considerable salvage value. As a rule, burned material should not be thrown from buildings, but should be carried out. Salvage companies are equipped with waterproofed cotton duck rubbish carriers, 5 x 5 feet, for this purpose.

FIRES IN SPRINKLERED BUILDINGS

When working in buildings equipped with automatic sprinklers, where one or more heads have been ruptured, salvage work consists primarily of spreading covers and removing water under and around the ruptured heads. Before shutting off the sprinkler system, it should be remembered that the fire loss is of the greatest importance. The system should never be shut down completely until the fire has been extinguished or until the engine companies are working on the fire with hose lines and it is evident that there is no danger of spread.

Statistics furnished by the National Fire Protection Association show that in 96 percent of the cases of fire in sprinklered buildings, the sprinklers either extinguish the fire completely or hold it in check until the arrival of the fire department. In the 4 percent of failure to do one of these things, one of the common causes is shutting off the system prematurely.

Another great cause of failure on the part of the automatic sprinkler system has been found to be that the system was inoperative at the time of the fire. For this reason, a salvage officer who has encountered one or more ruptured heads of such a system is responsible for seeing that the system is restored to operation before returning to quarters. Replacement heads, tools and all the necessary equipment for this purpose are carried on all salvage companies. The control valve should be closed, the ruptured heads removed and replaced with heads that fuse at the same temperature, and the control valve reopened. This last is important — the most numerous cause of sprinkler failure being closed valves.

Occasionally the exposure heat from a large fire may cause operation of a sprinkler system in an adjacent building. To prevent this, the windows on the unexposed side of the building should be opened. If one or more heads have been ruptured, however, these should be closed with shut-offs to prevent water damage. Never shut down the system as long as there is any danger of spread.

If no separate salvage company responds to an alarm, during the first five minutes after arrival all the efforts of every available man are needed in laying hose lines, doing ladder work, and ventilating. But after these first five minutes have elapsed, men may be available for other duties. Even in small communities, a few men can be spared to do cover work. All fire departments can perform some salvage work at fires.

It must be remembered that salvage efficiency demands more than the spreading of covers at fires. It extends into every phase of fire fighting. One inefficient engine company, using fire streams improperly, can cause more damage than a score of salvage companies can prevent. The engine com-

pany should work inside whenever possible, open their lines only when fire can be seen, and reduce the size of streams as quickly as conditions will permit. Leaky hose couplings dragged inside a building can produce considerable water damage. Pulling of walls and ceilings by truck companies before furnishings have been protected only adds to the loss. Usually this is not done until the main body of fire has been extinguished, and the few moments then necessary to spread salvage covers will be of no great importance. Thus it can be seen that cooperation with salvage companies will aid greatly in reducing unnecessary damage at a fire, and, if no salvage company is present, the exercise of more care in performing other operations will be of considerable benefit.

* * *

Wax Products Factory Fire at Long Beach, California

A WOMAN employee lighting candles in a display room accidentally started a fire in a 1- and 2-story brick candle factory 50 by 130 feet in area. The fire spread rapidly due to ignition of drapes in the display room and due to flammable vapors from heated wax which apparently carried fire through an open hallway to the rear of the building.

The woman was burned in attempting to extinguish the fire but her efforts appeared to fan the flames.

The initial telephone alarm was followed by radioed second and third alarms according to Acting Chief A. L. Schmidt, and a foam truck and floodlight plant were special called. Eleven streams, eight with 1½-inch hose and three with 2½-inch hose controlled the fire and protected severe exposures nearby.

* * *

Time Saved by Radio

ALL the seven pieces of major fire apparatus in the city of Everett, Wash., are equipped with two-way radios. After a company is through at a fire and have filled their booster tank, they report in by radio on the way back to their station. During 1946, the fire companies were in service for 52 hours and 26 minutes while en route back to quarters, or otherwise out of quarters, because of radio equipment.

Hundreds of FIRE WORRIED PEOPLE AWAIT Your Call

Every Building is a Sales Opportunity

Every Sale a Handsome Profit

The fear of fire is universal. That's why people buy insurance but that doesn't stop fires. What they need is an extinguisher handy during the first few minutes . . . and they know it. They are just waiting for some enterprising salesman to show them a Randolph.

Think of it. Every home, every boat, car, garage, gas station, store, shop, laundry, farm, hotel, printer . . . each of them is a prospect.

They want a Randolph, with its panic proof trigger action, that smothers the fire instantly in a snowy blanket of carbon dioxide. No mess, no water, no damage, even to food . . . it evaporates without a trace.

You can qualify for exclusive territory to sell the famous Randolph, nationally advertised and officially accepted by the armed services, and used by leading industrial concerns everywhere . . . approved by Underwriters' Laboratories.

If you are looking for a permanent selling opportunity . . . one that will give you quick action and substantial profits . . . then write now for complete information about territory, profit opportunity, demonstration kit, sales portfolio and full instructions. Act quickly and get started.

WRITE YOUR OWN PAY CHECK

- 1 SALE A DAY NETS $42.00 A WEEK
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HALE FZZ PUMPING UNIT

With a Direct-Connected 4-Cycle Air-Cooled Engine

- READY FOR USE
- RUGGED
- POWERFUL
- PORTABLE

Pumping Fog and Solid Stream Through 1½" Lines

Here's a pumping unit every Fire Company should own — the new Hale Model FZZ, ready for prompt delivery. Capacity 60 GPM at 90 lbs.; 150 at 30 lbs.

Write for FZZ Folder and new Bulletin on how to use Foam with FZZ Unit

HALE FIRE PUMP COMPANY
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Fire Pumps in all Standard Capacities

CAN PAY FOR ITSELF IN SIX MONTHS

By eliminating Dry Batteries

5" TRUE parabolic, silver plated reflector; 25,000 c.p. beam; ½ mile range; sturdy metal case; corrosion proof terminals

Only 72 ounces

Will not spill in ANY position

Battery change in 10 seconds without returning to factory

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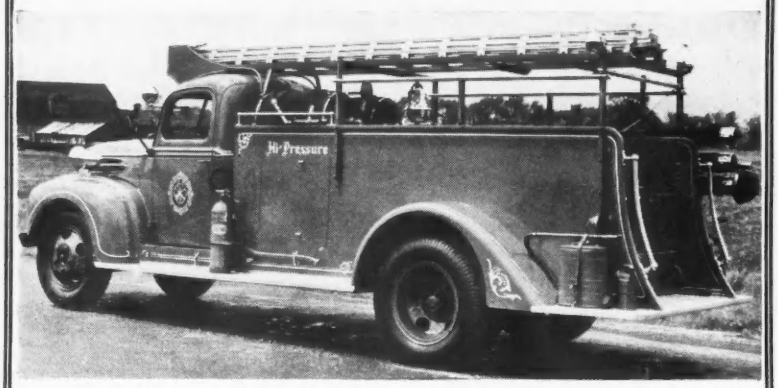

"Quality Fire Apparatus" is the slogan of Young Fire Equipment Corporation of Buffalo, New York. This beautiful hi-pressure truck built by Young for the Chili, N. Y. Fire Department is fitted with a Hardie High Pressure Pump.

● More and more is recognized the fact that Fog Fire Fighters bring quick, positive fire control and a new measure of security to isolated communities. The quick mobility, positive performance and economy of Fog Fire Fighters make such equipment a "must" today in metropolitan fire departments.

Hardie High Pressure Pumps are readily assembled into any truck design. They give unfailing high pressure and a long life of trouble-free performance. When you buy a Fog Fire Fighter specify a Hardie Pump and Hardie Fog Gun. Any equipment manufacturer will gladly supply them. Write for data.

● This Hardie Imperial LCXA Pump delivers 60 G.P.M. at 800 P.S.I.

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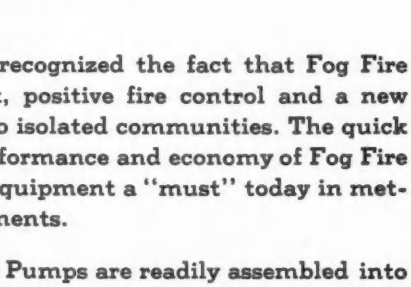

THE HARDIE MANUFACTURING COMPANY
Los Angeles 11, Calif. HUDSON, MICH. Portland 9, Oregon
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★H★A★R★D★I★E
High Pressure PUMPS AND FOG GUNS for Fog Fire Fighters

Soot and Chimney Fires

Continued from page 7

There are various methods of cleaning chimneys by mechanical means. Brushes and scrapers of various kinds are commonly used. There is no one method that can be recommended as best under all circumstances as the difficulty of the soot removal will depend to a considerable extent upon the quality of the particular soot. The use of chains lowered on ropes, bricks lowered and raised in a chimney to dislodge soot, and other means are effective to varying degrees. Whatever method is followed, care should be taken to do the job completely. A visual inspection of the chimney after the cleaning is usually sufficient to determine whether the job is adequately done. Particular care should be taken to remove soot from any spaces around smoke pipe openings, ledges above fireplaces, and other interior spaces in the chimney where soot is particularly likely to accumulate.

The frequency of soot removal needed to maintain safe conditions will depend entirely upon the fuel used. There is no fixed interval that can be recommended as providing safety in all instances. The interval needed in any individual case will have to be determined upon experience, depending upon the type of fuel used and the kind of heating appliance. At least annual cleaning is commonly recommended. Cleaning twice a year is preferable and in some instances it may be necessary to clean chimneys at even more frequent intervals in order to maintain safe conditions.

There are a number of so-called chemical soot removing means that have been suggested and various proprietary soot removal compounds are on the market. Some of these may be effective but their value is somewhat questionable and they are not recommended by the U. S. National Bureau of Standards. Some of these compounds are said to contain chlorates which are oxidizing agents and may be explosive. The use of soot removal compounds containing chlorate has been prohibited in some states.

A chimney cleaning job which is not well done may, under some conditions, serve actually to increase the hazard by disturbing the soot and exposing new surfaces to ignition. For this reason whenever a chimney cleaning job is undertaken, it should be thoroughly done and all soot removed.

The Little Valley, N. Y. Fire Department

Continued from page 9

of ¾-inch booster line. This truck will be sold next month when a new 750 gpm American-LaFrance cab-ahead-of-engine pumper is delivered.

No. 2 is a ladder truck built on a 1936 Dodge 1½-ton chassis. It carries ladders of all sizes, up to a 50-foot extension. It also carries 1,000 feet of 2½-inch hose, has a 120-gallon booster tank, and 150-feet of 1-inch hose.

No. 3 is an army surplus fire truck, recently purchased by the department and remodeled. It has a 100 gpm front end pump supplying two 1½-inch outlets (front and rear) and two ¾-inch booster lines, each booster line being 100 feet in length. Water may be drafted or taken from the 400-gallon water tank. It carries 700 feet of 2½-inch hose and 400 feet of 1½-inch. This truck is equipped with four-wheel drive, which has proven very efficient in answering alarms over muddy or snow-filled roads in rural areas.

No. 4 is a 500 gpm trailer pump. This is hauled by No. 3 when necessary, and is used primarily for rural fires where it would not be advisable to put the larger and heavier pumper into position for draft. Various small tools and equipment are carried on the trucks such as carbon dioxide extinguishers, foam, salvage covers, MSA masks, light plant, Indian pumps, flares, lanterns, bars, axes, hooks, and ropes. Some of the tools are of our own design.

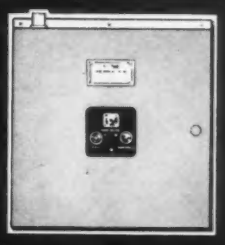
Trucks No. 2, 3, and 4 have been purchased and equipped from department funds and were no burden to the village taxpayers. Donations from rural residents were accepted toward equipping No. 3.

A general alarm siren on top of the hose drying tower gives the alarm. The first arriving fireman at the top of the station puts an air horn into operation which codes the approximate location of the fire so that the late arriving firemen need not make a trip to the station to find out the location. Fire alarm cards are placed in all homes and business places in the village.

The Little Valley fire station was built in 1940. In the rear is a hose drying tower. Also housed in the station are the offices of the Municipal Water and Light Department, town and village board rooms, firemen's meeting room, and a community hall.

• Smoke is usually the first sign of fire—often it's undetected till it's too late. Valuable fire fighting minutes are lost because no one sees the fire start. C-O-Two is on guard all the time. With a complete C-O-Two detecting and extinguishing system, extra-hazardous areas and extra-valuable properties are safe from fire. The C-O-Two Smoke Detector *continually* draws air from the protected space. It picks up the first whiff of smoke and sets off visible and audible alarms. Automatically or manually released, cold, dry carbon dioxide gas-and-snow blankets the space and puts out the fire. It's over in seconds with no damage to buildings, equipment or material.

If you have record or blueprint vaults, flammable liquid storage rooms or enclosed spaces for valuable material, let one of our fire protection experts discuss with you your particular problem. Write us today for more information.



THE C-O-TWO SMOKE DETECTOR

The C-O-Two smoke detector is compact. It measures only nine inches deep by twenty inches square, and contains the complete mechanism for detecting smoke.

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MECHANICAL FOAM
PRODUCING LIQUID

It flows—covers—seals—extinguishes » » » Highly effective on oil and gasoline fires » » » Use with any kind of water—at any temperature—in all makes of equipment.

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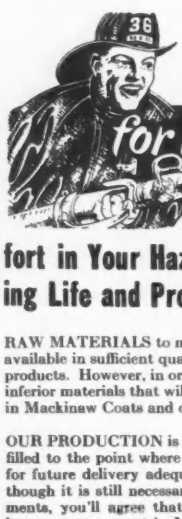

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Protective Clothing
for Men of Action!

Here's Protection and Comfort in Your Hazardous Work of Safeguarding Life and Property against FIRE!

RAW MATERIALS to meet our rigid specifications are now becoming available in sufficient quantities to supply the demand for Midwestern products. However, in order to deliver without delay, we refuse to buy inferior materials that will lessen the service you have a right to expect in Mackinaw Coats and other Midwestern clothing.

OUR PRODUCTION is now at an *all time high*. Back orders are being filled to the point where we can assure those who have placed orders for future delivery adequate protection for this fall and winter. Although it is still necessary to place your order in advance of requirements, you'll agree that the extra protection, built-in comfort, and longer wear you get in Midwestern clothing make it well worth while placing your order NOW!

Have your Midwestern dealer show you our complete line now made of natural rubber. Note the softness, the flexibility, the high grade materials used to assure long service, comfort, and real protection. White, ivory and brown crude rubber coats now available for Chiefs and assistants.

Available for immediate delivery subject to prior sale, all sizes firemen's short ¾ boots.

NONE GENUINE WITHOUT THIS TRADE MARK

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Manufacturers of the Famous MACKINAW Coats

Oklahoma City Firemen Battle Hot Fire in Plating Concern

VAPORS of lacquer thinner coming in contact with an open flame, touched off a hot fire that totally involved a one-story brick plating plant. A telephoned alarm at 5:24 P.M. was followed within two minutes by a second alarm over the fire department radio. This brought a total response of six pumpers, two squad and rescue trucks, and two ladder trucks under Chief G. R. McAlpine. The entire off-shift was called back.

Using seven lines from four pumpers plus one hydrant line, the fire was under control in about ten minutes although pumps worked for approximately one hour. The loss totalled $13,200.

Fire Methods in Pasadena

IN PASADENA, CALIF., by standing order the first line on a residence fire has two 100-foot 1½-inch leader lines attached to a wye. One leader line has a ¾-inch tip and the other a combination fog-straight stream nozzle. Additional streams consist of 2½-inch lines with standard tips. The 2½-inch line is laid whenever smoke is visible. Relative humidity is watched closely by a weather observer, and, if nearing 30 percent, outlying companies are strengthened by calling back one off-shift member.

Chief Aubrey G. Robinson New Hampshire Fire Marshal

CHIEF AUBREY G. ROBINSON of Manchester, N. H., was the unanimous choice of Governor and Council to fill the newly created post of State Fire Marshal. Chief Robinson, a member of the Manchester department (the largest in the state) for 24 years was a member of the State Fire Control Board. He was succeeded on the Board by Chief Walter R. Messer of Keene.

First Motorized Department?

The Radnor Fire Company of Wayne, Pa. (member NFPA) believes that it was the first to have completely motorized equipment. A Knox combination chemical and hose truck was placed in service in 1906 and a Knox pumper equipment with Waterous pump in 1908.

MANUFACTURERS' ANNOUNCEMENTS

Davis Introduces New Analyzer

Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J., manufacturers of gas detection instruments, have announced a new Micro-Gas Analyzer for determining and analyzing the concentration of gases or vapors. Many different gases may be analyzed. The analyzer is portable, weighing approximately 33 pounds. Operates from 110 AC, 60-cycle current.

Maltese Cross Hose Back from War

Hewitt Rubber Division, Hewitt-Robbins, Inc., Buffalo, N. Y., announces resumption in production of "Maltese Cross" fire and chemical hose withheld from manufacture during the war because of restrictions on the use of premium quality materials. Availability of special long-staple cotton necessary to produce the high-tensile duck has enabled Hewitt to reinstate this brand of hose. For over 50 years recognized for fire protection service in oil refineries, acid plants, and mines, according to the manufacturers. Special chemical treatment to protect the duck against deterioration by mildew while a rubber cover eliminates the necessity of drying after use. High quality rubber tube and cover are used to withstand oil without cracking.

New Anemometer Gives Direction and Velocity of Wind

The new Hastings Anemometer, distributed by Air Associates, Inc., of Teterboro, N. J., gives quick, accurate, direct readings of wind direction and velocity. So important to forest fire wardens, weather stations, commercial airports, and navigators. The anemometer is also an interesting informant on the farm or in the home. It is said to be extremely light in weight and easy to install. The outside installation consists of a single unit which registers both the direction and velocity of the wind — in contrast to the two units normally required. A fan-type spinner offering no resistance to the wind gives maximum readings in gusts. Inside installations comprises two matching meters in a plastic case which can be set on a desk or hung on a wall. The meter can be furnished to operate on 110-volt A.C. current or batteries. In the case of power failure, the velocity scale remains operative.

100 FEET BELOW SEA LEVEL

FIREMEN GO UNDER RIVER TO PUT OUT TUNNEL BLAZE

Thurs., May 15, 1947—The New York City Fire Department today met an emergency described as the first of its type ever fought.

In a scene reminiscent of a coal mine disaster, firemen successfully fought a stubborn fire in a tunnel 100 feet under the East River. It was put out without loss of life or serious injury by a squad of five firemen and a Captain, all wearing Scott Air-Paks.

Excerpt from New York Herald-Tribune

Scott Air-Pak DID THE TRICK!

- **Once again** the Scott Air-Pak contributed to a reduced fire loss, and with greatly reduced risk to fire-fighting personnel.
- **Once again** the Scott Air-Pak did a job that could not be accomplished with other breathing equipment.
- **Once again** it has been proved that the best breathing equipment is the equipment ready for *any* emergency.

The fact that Scott Air-Paks were available when this emergency occurred is indicative of the far-sightedness of New York Fire Department executives charged with the protection of life and property. The safety and efficiency of *your* firemen can be immensely increased by the use of Scott Air-Paks.

ONLY THE SCOTT AIR-PAK

- **Can be used in any temperature from below zero to desert heat.**
- **Only the Scott delivers fresh, cool, confidence-inspiring air.**
- **Only the Scott has a cylinder gauge to prevent the inadvertent use of empty or partly empty cylinders.**
- **Only the Scott has acid-proof and corrosion-proof straps and fittings.**
- **Only the Scott has a battle-tested and emergency-proved Regulator.**
- **Only the Scott has a custom-built, not a commercial, gauge, within the wearer's vision.**

The Scott Air-Pak has Bureau of Mines Approval No. 1308

Write today for literature, and the name of your nearest Scott Distributor.

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SCOTT AVIATION CORP.

236 Erie Street, Lancaster, N. Y.

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Breathe pure fresh AIR in every breathing hazard

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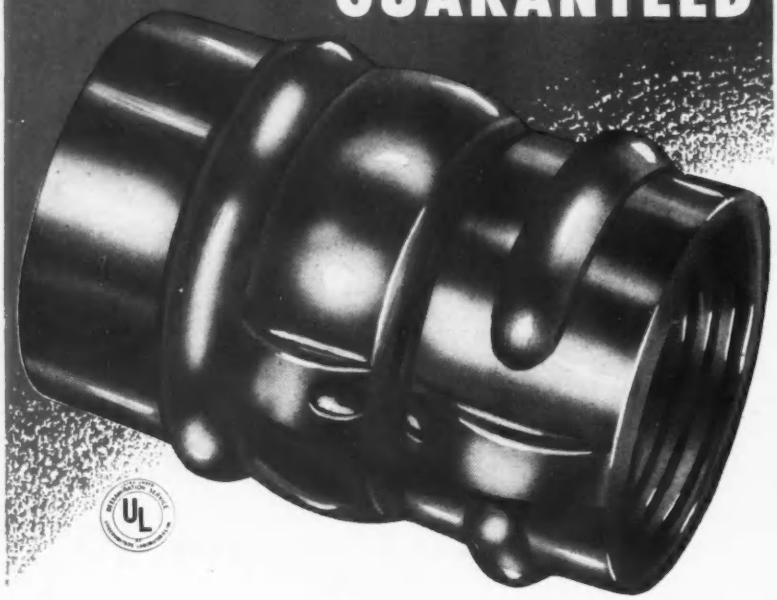


Guarantee now in effect on AKROLITE COUPLINGS meets the Guarantee on the Fire Hose

Ordinarily the Akrolite Rocker Ring Coupling will outlast the normal life of fire hose. As a minimum we specifically guarantee these couplings to equal the fire hose warranty.

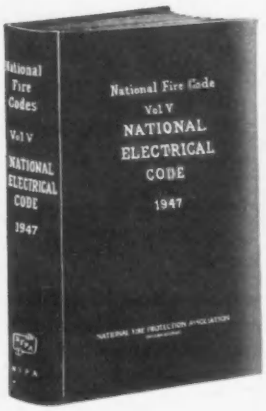
Protect your purchase of fire hose with guaranteed Akrolite Rocker Ring Couplings.

AKRON BRASS MFG. COMPANY, INC.
WOOSTER, OHIO

FIREMAN FREDDIE SAYS: You should hear all the praises firemen sing, whose departments are equipped with Rocker Ring!

AKRON BRASS
FIRE FIGHTING EQUIPMENT

National Electrical Code



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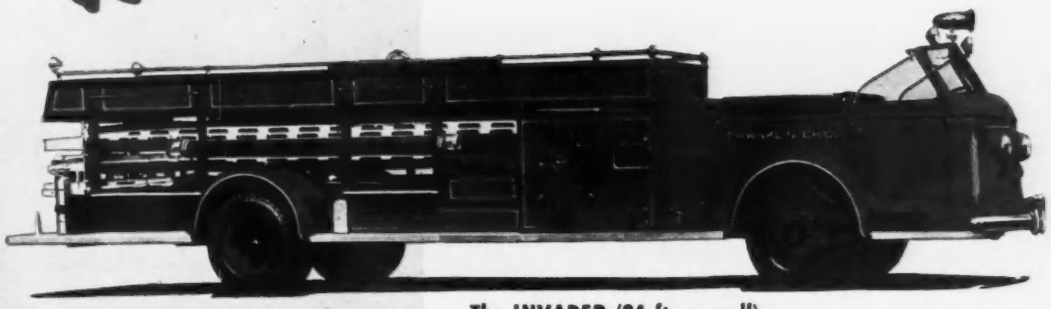

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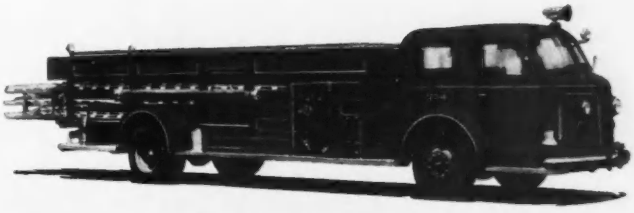

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LIFTS WATER 100 FT.

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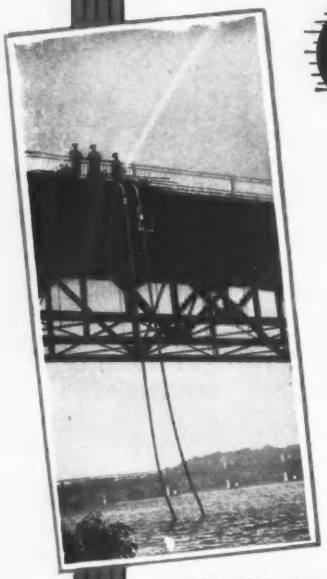
CHAMPION HI-LIFT SUCTION BOOSTER



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208 GPM WITH THE TRUCK 73 FEET ABOVE AND 165 FEET DISTANT FROM THE WATER

"... if it was not for the HI-LIFT the bridge would have gone and they could not let trains pass for weeks."

CHIEF BRIDGES, KENT, WASH.

CITY OF KENT
WASHINGTON

May 14, 1946.

W. S. Darley & Co.
Chicago 12, Illinois

Gentlemen:

May 11th, we had a fire on a Milwaukee Railroad bridge, 1,000 feet long. The trestle was constructed of heavy timbers and well creosoted. The river was near, and the water 35 feet down from the bank, and fifty feet away. We tossed in our Hi-Lift Suction Booster, and pumped water for two hours steady and saved the 1,000-foot trestle and bridge across the river. The Milwaukee office at Seattle called in four other fire departments and all they could do was look at the fire fighting that was being done by our department because we were the only ones that owned a Champion Hi-Lift Suction Booster. The General Manager, the Superintendent and all the high officials of the Milwaukee Railroad were at this fire and they sure were interested to see that little pump throw so much water. If it hadn't been for the Hi-Lift the bridge would have gone and they could not let trains pass for weeks. Once more we made the Seattle papers on the front page with your Champion Hi-Lift. They replaced three pilings and the trains resumed going over the bridge. There was smoke going up in the sky for 200 feet and flames the same.

Yours truly,

Chas. Bridges, Fire Chief.

W. S. DARLEY & CO.

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Check these Features!

- √ One-piece, high pressure molded of laminated bakelite
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Better head protection and easy wearing comfort ride with the fireman on every run—stay with him on the job, and serve him every minute—when he wears the M.S.A. Streamlined Fireman's Helmet. This most popular modern helmet's correct proportions and streamlined design deflect the force of blows and bumps, keep hot water and embers from face and neck, add smartness on parade. Heat and moisture cannot soften or deteriorate the highly fracture-resistant shell. Write for the facts in Bulletin DX-5!

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THE M·S·A WINTER LINING . . . . .

Zipper-fastened ear lugs of warm, lined grayfall cloth—easily attached or removed—keep forehead, neck, sides and back of head protected from icy winds, sleet and spray. Snug-fitting, practical, comfortable!

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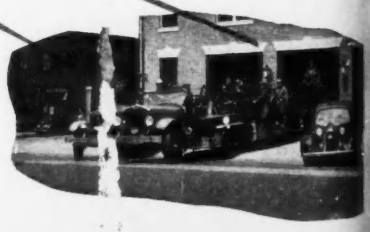

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